

**UNITED STATES DISTRICT COURT  
DISTRICT OF MINNESOTA**

Digital Angel Corporation,

Plaintiff,

v.

Datamars, Inc.,<sup>1</sup> Datamars SA,  
The Crystal Import Corporation,  
and Medical Management  
International, Inc.,

Defendants.

**MEMORANDUM OPINION  
AND ORDER**

Civ. No. 04-4544 ADM/JSM

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**I. INTRODUCTION**

On February 28, 2006, a Markman hearing was held before the undersigned United States District Judge on the patent infringement claim of Digital Angel Corporation (“Digital Angel” or “Plaintiff”) against Datamars SA (“Datamars”), The Crystal Import Corporation (“Crystal”), and Medical Management International, Inc. (“MMI”) (collectively “Defendants”). Digital Angel alleges Defendants infringed claims 2, 5, 6, 8, 9, 20, and 27 of U.S. Patent No. 5,211,129 (“the ‘129 patent”). Defendants counterclaim for a declaratory judgment of non-infringement and invalidity of the ‘129 patent.

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<sup>1</sup> On May 11, 2005, Digital Angel and Datamars, Inc. stipulated to a dismissal of all claims against Datamars, Inc. and all counterclaims against Digital Angel. Stipulation of Dismissal [Docket No. 30]. Datamars, Inc. is no longer a party to this dispute.

## II. BACKGROUND

The '129 patent, entitled "Syringe-Implantable Identification Transponder," describes a miniaturized device implanted beneath the skin of an animal and used for identification purposes. Pokotilow Decl. [Docket No. 65] Ex. 1 ('129 patent), col. 1:13-24. The transponder is useful for monitoring the migratory patterns of wild animals, identifying domesticated animals, and monitoring laboratory animals for experimental purposes. Id. at col. 1:27-37. The specification of the '129 patent lists attributes favoring the syringe-implantable transponder over the prior art. Id. at cols. 1:27-68, 2:1-36. For example, one prior identification device could only be affixed to the exterior of an animal, such as to a dog's collar. Id. at col. 1:42-46. Another prior identification device could be implanted inside an animal, but this device was much larger than the syringe-implantable transponder, and required surgery on, or swallowing by, the animal. Id. at col. 2:20-36. Still another device was small enough to be implanted under an animal's skin without surgery, but was unable to provide a unique signal, making it impossible to identify a particular animal. Id. at col. 1:61-66. By contrast, the syringe-implantable transponder can be implanted under an animal's skin without surgery, transmits a unique signal making identification of one animal from another possible, is small enough to be implanted in fish, and is durable for at least several months. Id. at col. 2:46-57.

The specification also describes the way in which the transponder functions, and depicts a preferred embodiment. Id. The transponder, comprised of a coil and an integrated circuit chip, is able to receive and transmit signals, and store an identification code. Id. at cols. 3:61-68, 4:1-6. The signal transmitted by the transponder is read by a device known as an "interrogator." Id. at col. 5:25. The interrogator continually transmits an interrogation signal. Id. at col. 5:27-28.

When an animal with an implanted transponder passes by an interrogator, energy is inductively coupled to the transponder, which then transmits an identification signal that identifies the individual animal. Id. at col. 5:30-33. The interrogator can be stationarily placed in an area where it is known that animals with implanted transponders will pass by, such that operator intervention is not needed. See id. at col. 6:3-12.

The '129 patent matured from U.S. patent application serial number 647,617 ("the '617 application"), which was a continuation of U.S. patent application serial number 267,726 ("the '726 application"), which was a continuation of U.S. patent application serial number 135,563 ("the '563 application"), which was a continuation of U.S. patent application serial number 832,684 ("the '684 application"). Id. at col. 1:5-10. The '684, '563, and '726 applications were all rejected for obviousness and indefiniteness and/or abandoned. Defendants' Exs. [Docket No. 56] 2b (Swiatek letter); 3 (Swiatek letter); 4b (Hancock letter). While the '617 application was pending, the patent applicants submitted an Information Disclosure Statement to the United States Patent and Trademark Office, revealing that certain transponders had already been sold to customers. Id. 4b. The application was then rejected for sale and use more than one year prior to the filing date of the earliest parent application. Id. 4c (Swiatek letter dated January 24, 1992).

The applicants then filed a Request for Extension of Time and an Amendment to the patent. In the Amendment, counsel argued the previous sales should not bar the patent application. Id. (Hancock letter dated July 27, 1992). When the transponders were first manufactured and sold, they were encapsulated with a plastic material. Id. The transponders had an unacceptable failure rate due to leakage of the host animal bodily fluids into the

transponder. Id. Experiments directed toward improved encapsulation began, and ultimately glass and its equivalents were settled on as the preferred method of encapsulation. Id. Therefore, the invention claimed by the patent was not successfully reduced to practice until after the critical date. Id. The patent ultimately issued, with claims 1 and 14-39 (reciting material having characteristics equivalent to glass) allowed, renumbered as claims 1-27. Id. 4d (Swiatek letter dated December 16, 1992). Claims 40-63 (reciting glass specifically) were cancelled pursuant to an examiner's amendment, after authorization was given by the patent applicants. Id.

Digital Angel is the owner of the '129 patent. Compl. [Docket No. 1] ¶ 19. Datamars, a Swiss corporation, manufactures syringe-implantable transponders that are sold and marketed by its U.S. subsidiary, Crystal. Answer [Docket No. 14] ¶ 19. MMI owns and operates veterinary hospitals named "Banfield, The Pet Hospital," and has sold Datamars' transponders, purchased from Crystal, at Banfield hospitals. Id. ¶ 20; Countercl. ¶ 39. Digital Angel alleges that the Defendants' manufacture and sale of syringe-implantable transponders infringes the '129 patent. Compl. ¶¶ 22-23. Prior to the instant action, Digital Angel's predecessor-in-interest, Destron/IDI, was engaged in litigation over infringement and validity of the '129 patent ("Infopet litigation"). See Defendants' Exs. 7-8, 10-11; Destron/IDI, Inc. v. Infopet Identification Sys., Inc., No. 93-Z-2348 (D. Colo. 1996).

Prior to the Markman hearing, counsel for the parties agreed on certain claim constructions. The parties agree that the term "several months" found in claim 2 means "more than 2 months," and that the term "formed integrally" found in claims 3 and 10 means "formed

as a unit with another part.”<sup>2</sup> Joint Claim Constr. Statement [Docket No. 38]. The parties dispute the meaning of the following claim terms:

- “consisting essentially of” found in claim 2;
- “integrated circuit means” found in claims 2, 6, 20, and 27, and “integrated circuit” found in claim 8;
- “carrier means” found in claims 2 and 27, and “means for maintaining” found in claim 20;
- “encapsulation means” found in claims 2 and 27, “means encapsulating” found in claim 8, “enclosure” found in claim 6, and “material having characteristics equivalent to glass” found in claims 2, 8, 20, and 27;
- “packaged together in sterile packaging means” found in claim 6.

### III. DISCUSSION

#### A. Standard of Review

Claim construction is a matter of law. Markman v. Westview Instruments, Inc., 52 F.3d 967, 979 (Fed. Cir. 1995), aff’d, Markman v. Westview Instruments, Inc., 517 U.S. 370 (1996). In construing claims, courts should look first to intrinsic evidence, which includes the claims, the specification, and the prosecution history. Vitronics Corp. v. Conceptronic, Inc., 90 F.3d 1576, 1582 (Fed. Cir. 1996). Claim words are given their ordinary and customary meaning, which “is the meaning that the term would have to a person of ordinary skill in the art in question at the time of the invention, i.e., as of the effective filing date of the patent application.” Phillips v. AWH Corp., 415 F.3d 1303, 1312-13 (Fed. Cir. 2005). However, a patentee can choose to be “his or her own lexicographer by clearly setting forth an explicit definition for a claim term.”

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<sup>2</sup> Plaintiff is no longer asserting claims 3 and 10 of the ‘129 Patent. Pl.’s Markman Br. [Docket No. 64] at 4 n.3.

Johnson Worldwide Assocs., Inc. v. Zebco Corp., 175 F.3d 985, 989 (Fed. Cir. 1999). Claim terms “should be construed consistently with [their] appearance in other places in the same claim or other claims of the same patent.” Rexnord Corp. v. The Laitram Corp., 274 F.3d 1336, 1342 (Fed. Cir. 2001). In addition, the specification is usually “dispositive; it is the single best guide to the meaning of a disputed term.” Vitrionics, 90 F.3d at 1582. Courts are nonetheless cautioned not to import limitations from the specification into the claims. Phillips, 415 F.3d at 1323; The Laitram Corp. v. NEC Corp., 163 F.3d 1342, 1347 (Fed. Cir. 1998).

Extrinsic evidence is “evidence which is external to the patent and file history, such as expert testimony, inventor testimony, dictionaries, and technical treatises and articles.” Vitrionics, 90 F.3d at 1584. While courts can consider extrinsic evidence to educate themselves about the patent and technology at issue, it is improper to rely on extrinsic evidence in construing claims unless, after consideration of all the intrinsic evidence, ambiguity remains. Mantech Envtl. Corp. v. Hudson Envtl. Servs., Inc., 152 F.3d 1368, 1373 (Fed. Cir. 1998); Vitrionics, 90 F.3d at 1584. Dictionaries may be useful to courts in understanding the ordinary and customary meaning of words, and courts may “rely on dictionary definitions when construing claim terms, so long as the dictionary definition does not contradict any definition found in or ascertained by a reading of the patent documents.” Phillips, 415 F.3d at 1322-23.

Means-plus-function claim elements are interpreted according to 35 U.S.C. § 112, ¶ 6:

An element in a claim for a combination may be expressed as a means or step for performing a specified function without the recital of structure, material, or acts in support thereof, and such claim shall be construed to cover the corresponding structure, material, or acts described in the specification and equivalents thereof.

“Whether certain claim language invokes 35 U.S.C. § 112, ¶ 6 is an exercise in claim construction and . . . a question of law.” Personalized Media Communications, LLC v. Int’l

Trade Comm'n, 161 F.3d 696, 702 (Fed. Cir. 1998).

Use of the term ‘means’ in a claim limitation creates a presumption that section 112, paragraph 6 has been invoked, but that presumption may be rebutted if the properly construed claim limitation itself recites sufficiently definite structure to perform the claimed function. Conversely, absence of the word ‘means’ creates a presumption that section 112, paragraph 6 has not been invoked, and that presumption may likewise be rebutted if the claim limitation is determined not to recite sufficiently definite structure to perform the claimed function. After a court establishes that a means-plus-function limitation is at issue, it must then construe the function recited in that claim and determine what structures have been disclosed in the specification that correspond to the means for performing that function.

Kemco Sales, Inc. v. Control Papers Co., Inc., 208 F.3d 1352, 1361 (Fed. Cir. 2000). In determining whether a term in a claim limitation recites sufficient structure, the court inquires into whether the “term, as a name for structure, has a reasonably well understood meaning in the art.” Watts v. XL Sys., Inc., 232 F.3d 877, 880-81 (Fed. Cir. 2000).

#### **B. “Consisting Essentially of”**

The first term to construe is “consisting essentially of” and is found in the preamble of claim 2. Digital Angel argues that the phrase is a term of art in patent law that has a well established meaning. Accordingly, Digital Angel avers the term is “a non-limiting transition phrase used to indicate that the invention necessarily includes the listed claim elements and is open to unlisted claim elements that do not materially affect the basic and novel properties of the claimed invention.” Joint Claim Constr. Statement, App. A at 1. By contrast, Defendants argue that the term means “including only those elements recited in the claim, and no additional elements that materially affect the characteristics of the claimed invention.” Id.

Both parties refer to PPG Indus. v. Guardian Indus. Corp., 156 F.3d 1351 (Fed. Cir. 1998) for support. In PPG Indus., the Federal Circuit stated:

“Consisting essentially of” is a transition phrase commonly used to signal a partially

open claim in a patent. Typically, “consisting essentially of” precedes a list of ingredients in a composition claim or a series of steps in a process claim. By using the term “consisting essentially of,” the drafter signals that the invention necessarily includes the listed ingredients and is open to unlisted ingredients that do not materially affect the basic and novel properties of the invention.

156 F.3d at 1354. In the ‘129 patent, claim 2 begins “[a] transponder for syringe implantation into a host animal, consisting essentially of:” and then lists materials included in the transponder. ‘129 patent, col. 13:41-60. “Consisting essentially of” is construed in accordance with the Federal Circuit’s construction of the term in PPG Indus. to mean “the invention necessarily includes the listed claim elements but is open to unlisted claim elements that do not materially affect the basic and novel properties of the claimed invention.”

### **C. “Integrated Circuit Means” and “Integrated Circuit”**

The next terms to construe are “integrated circuit means” found in claims 2, 6, 20, and 27, and “integrated circuit” found in claim 8. Digital Angel argues that the term “integrated circuit” has a well known meaning to those of skill in the art, and therefore the presumption that 35 U.S.C. § 112, ¶ 6 applies as a result of the use of the word “means” is rebutted.<sup>3</sup> Digital Angel supports its contention by referencing dictionary definitions of “integrated circuit” and highlighting the absence of the word “means” with respect to “integrated circuit” in claim 8. Digital Angel avers that the claim language and specification evince an intent by the inventors to use the term “integrated circuit” in a broad manner rather than limiting the term to a particular

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<sup>3</sup> Digital Angel argues that none of the terms at issue are means-plus-function elements, and therefore, 35 U.S.C. § 112, ¶ 6 does not apply to any of the terms. Because Defendants aver that 35 U.S.C. § 112, ¶ 6 applies to the disputed claim terms that use the word “means,” Digital Angel has provided the Court with alternate claim constructions: one that applies if the terms are construed to be means-plus-function elements, and one that applies if they are not. Defendants have only provided the Court with constructions of the disputed terms that assume that the terms are means-plus-function elements.



type of integrated circuit. The invention should not be limited by the description of the preferred embodiment, and additional limitations in some of the dependent claims demonstrate that “integrated circuit” in the independent claims is to be interpreted broadly.

Consequently, Digital Angel defines “integrated circuit” and “integrated circuit means” as “any complex set of electronic components and their interconnections that are etched or imprinted on a chip.” Joint Claim Constr. Statement, App. A at 2, 5-6, 11, 13. Digital Angel adds to the definition by reciting the functions that the “integrated circuit” must perform: store an identification code, output the identification code upon reception of an interrogation signal by said coil means, and generate a transmission frequency signal by dividing the frequency of the interrogation signal. Id.

Digital Angel proposes an alternative construction if “integrated circuit” is treated as a means-plus-function element. Digital Angel avers the functions recited in the claims are “storing an identification code and outputting the same upon reception of an interrogation signal by said coil means, and for generating a transmission frequency by dividing the frequency of the interrogation signal; detecting said interrogation signal; and transmitting an identification signal substantially instantaneously upon detection of the interrogation signal.” Id. at 2, 5, 7, 11, 14. Digital Angel avers that the structure disclosed in the specification for performing the stated functions is “integrated circuit chip 54 and equivalents thereto,” and the integrated circuit chip is “a completely self-contained unit that contains all the circuitry necessary to perform the transponder functions.” Id.

By contrast, Defendants argue that the inclusion of the word “means” in “integrated circuit means” activates the presumption that 35 U.S.C. § 112, ¶ 6 applies. Additionally, the

presumption that 35 U.S.C. § 112, ¶ 6 does not apply to the term “integrated circuit” in claim 8 because the word “means” is not specifically used, is rebutted because the term “integrated circuit” fails to recite sufficient structure for performing the functions stated in the claim.

Defendants aver that the “integrated circuit means” claims recite the following functions, with some of the functions being performed by more than one of the claims: “detecting an interrogation signal, storing an identification code (and outputting the same upon reception of an interrogation signal), generating a transmission frequency by dividing the frequency of the interrogation signal, and generating and transmitting an identification signal.” Id. at 2, 5-7, 11, 13-14. Defendants aver that the specification discloses separate and distinct structure for performing each of the stated functions:

- The corresponding structure for detecting an interrogation signal is a full wave rectifier and voltage regulator having the structure illustrated in Fig. 12 of the ‘129 patent.
- The corresponding structure for storing (and outputting) an identification code is a 40-bit programmable array consisting of 40 individual cells arranged in an 8x5 matrix, each cell consisting of two transistors connected by a fusible link to one of five common bus lines, each of the fusible links structured to be “blown” or “vaporized” for storing a respective bit of the identification code.
- The corresponding structure for generating a transmission frequency by dividing the frequency of the interrogation signal (by integer division or otherwise) is a Schmitt trigger and a counter circuit coupled to the Schmitt trigger and including multiple J-K flip/flops configured to divide the interrogation signal by 100 to produce a 4kHz transmission frequency.
- The corresponding structure for transmitting and generating an identification signal is a rectifier/regulator configured to receive the “Signal +” and “Signal -” signals communicated by the integrated circuit chip to modulate the interrogation frequency in accordance with the identification signal to be transmitted to the reader.

Id.

As an initial matter, the Court must determine whether “integrated circuit means” is a means-plus-function element. While a close question, the Court determines that the term “integrated circuit” has a reasonably well understood meaning in the art and connotes sufficient structure to rebut the presumption that the term is a mean-plus-function element. See Apex, Inc. v. Raritan Computer, Inc., 325 F.3d 1364, 1373 (Fed. Cir. 2003) (“While we do not find it necessary to hold that the term ‘circuit’ by itself always connotes sufficient structure, the term ‘circuit’ with an appropriate identifier such as ‘interface,’ ‘programming,’ and ‘logic,’ certainly identifies some structural meaning to one of ordinary skill in the art.”).

“Integrated circuit” and “integrated circuit means” are construed as “any complex set of electronic components and their interconnections that are etched or imprinted on a chip and are capable of performing the functions stated in the claims, including storing an identification code, detecting an interrogation signal, outputting the identification code upon reception of an interrogation signal by said coil means, and generating a transmission frequency signal by dividing the frequency of the interrogation signal.”<sup>4</sup> This conclusion is supported by the specification, which describes the integrated circuit and its circuitry in great detail. ‘129 patent, cols. 9-12. The specification also contains a specific disclaimer:

While a preferred embodiment of the invention has been described, numerous modifications and improvements can be made thereto without departure from the essential spirit and scope. The above disclosure of the invention should be considered exemplary only and not as a limitation on the invention, which is limited only by the following claims.

Id. at col. 13:1-7. While the specification describes a preferred embodiment of the invention, the

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<sup>4</sup> The functions of the integrated circuit are summarized here, but for purposes of this invention, the integrated circuit must be capable of performing all of the functions specifically stated in the claims.

claims are not limited to only the preferred embodiment, and the specification as well as the claim language indicate that any integrated circuit that can perform the stated required functions is within the scope of the invention. See Phillips v. AWH Corp., 415 F.3d 1303, 1323 (Fed. Cir. 2005) (“[A]lthough the specification often describes very specific embodiments of the invention, we have repeatedly warned against confining the claims to those embodiments.”).

**D. “Carrier Means” and “Means for Maintaining”**

The next terms to construe are “carrier means” found in claims 2 and 27, and “means for maintaining” found in claim 20. Again as a threshold consideration, whether 35 U.S.C. § 112, ¶ 6 applies must be determined. While Defendants argue that 35 U.S.C. § 112, ¶ 6 applies to both terms, Digital Angel argues once again that the terms are not means-plus-function elements, despite the inclusion of the word “means,” because the claims themselves recite sufficient structure. A review of the claim language reveals that the relevant claims recite functions but not structure for the terms at issue. Because the terms do not have a reasonably well understood meaning in the art that connotes sufficient structure, 35 U.S.C. § 112, ¶ 6 applies.

The next step is to identify the functions recited in the claims and the corresponding structures and their equivalents identified in the specification. Digital Angel and Defendants correctly identify the functions recited in the claims at issue. The function associated with “carrier means” is “maintaining said coil and said integrated circuit means in specified physical relationship to one another.” ‘129 patent, cols. 13:49-51, 16:66-68. The function associated with “means for maintaining” is “maintaining said coil and said integrated circuit means as a unit in predetermined relationship to one another with the external dimensions of said unit allowing passage of said unit through the syringe barrel . . . including means employing a material having

characteristics equivalent to glass for sealingly enclosing said unit from infiltration by internal fluids of said host for the length of said monitoring period after implantation in said host.” Id. at col. 16:6-10.

Digital Angel and Defendants agree that corresponding structure disclosed in the specification includes carriers 58 and 68 and extension member 74. Joint Claim Constr. Statement, App. A at 2-3, 12, 14-15. Digital Angel additionally avers that printed circuit board 78, a glue or other adhesive material, and the encapsulant itself are corresponding structure. Defendants disagree, arguing that Digital Angel erroneously includes the use of glue and adhesives to perform the “maintaining” function because such structures are not disclosed in the specification, and circuit board 78 and encapsulating member 50 are not corresponding structures capable of performing the function of the “carrier means” because the specification does not link those structures to the stated functions.

A review of the specification reveals, as Digital Angel and Defendants agree, several different ways by which the carrier structure can be accomplished, including carriers 58 and 68, and extension member 74. Circuit board 78 is also included. The carrier structures are depicted and described in Figures 7 and 8, with Figure 8 containing examples a through e. ’129 patent, cols. 7:58-66, 8:10-38. For example, Figure 7 shows carrier 58, which:

[C]omprises two upstanding ears 58a which are generally circular in their peripheral shape so as to fit within a circular glass tube used to form the encapsulating member 50. The carrier 58 is shaped to receive the integrated circuit chip 54 in a recess 58b formed therein, and the upstanding ear members 58a are shaped to receive the generally cylindrical coil former 60.

Id. at col. 7:58-66. While Digital Angel is correct in stating that the claim terms include equivalents to the corresponding structures disclosed in the specification, whether adhesives and

glue are equivalents is less certain. The language of the specification suggests that the carrier is some type of object. Additionally, while the encapsulant itself does not appear to be a corresponding structure for the “carrier means” in claims 2 and 27, it does appear to be a corresponding structure for “means for maintaining” in claim 20, as evidenced by the remainder of claim 20 which states “said maintaining means including means employing a material having characteristics equivalent to glass for sealingly enclosing said unit from infiltration by internal fluids of said host . . . .” Id. at col. 16:13-17. Therefore, the structure recited in the specification corresponding to the function performed by the “carrier means” and the “means for maintaining” is (1) carrier 58, (2) carrier 68, (3) extension member 74, and (4) circuit board 78, each as depicted and described in Figures 7 and 8, as well as (5) the encapsulant itself with respect to “means for maintaining,” and (6) the equivalents thereto.

**E. “Encapsulation Means,” “Means Encapsulating,” “Enclosure,” and “Material Having Characteristics Equivalent to Glass”**

The next terms to construe are “encapsulation means” found in claims 2 and 27, “means encapsulating” found in claim 8, “enclosure” found in claim 6, and “material having characteristics equivalent to glass” found in claims 2, 8, 20, and 27. The crux of the parties’ dispute regarding the terms in this section is whether the “encapsulation” must be of glass and not plastic, or whether the terms claim materials other than glass.

While Defendants aver that “encapsulation means” and “means encapsulating” should be construed as means-plus-function elements, Digital Angel argues that the terms should not be interpreted as means-plus-function elements because the terms have a well known meaning to those of skill in the art, and the claims themselves provide sufficient definition. Digital Angel argues that “encapsulation means” and “means encapsulating” mean “any material that encloses

the coil, integrated circuit means, carrier means, and conductor means, which is non-porous, corrosion-resistant, and amenable to sterilization.” Joint Claim Constr. Statement, App. A at 3, 7, 15. Digital Angel further argues that the “material” must have “characteristics equivalent to glass for preventing leakage of the internal fluids of the host animal into the unit for a period of several months.”

Use of the term “means” invokes the presumption that the terms “encapsulation means” and “means encapsulating” are means-plus-function elements. While the words “encapsulation” and “encapsulating” do have dictionary definitions and connote some structure on their own, they do not recite sufficiently definite structure by themselves to warrant rebutting the application of the 35 U.S.C. § 112, ¶ 6 presumption. As a result, the specification must be examined to determine the structure corresponding to the functions recited in the claims.

Employing means-plus-function analysis, Digital Angel and Defendants correctly identify the function of “encapsulation means” and “means encapsulating” found in the claim language: “encapsulating said coil means, integrated circuit means, carrier means, and conductor means in sealed relation as a unit and employing a material having characteristics equivalent to glass for preventing leakage of internal fluids of said host animal into said unit for a period of time in excess of several months.”<sup>5</sup> *Id.* at 3-4, 7-8, 15-16; Pl.’s Markman Br. at 24. The parties disagree, however, as to the corresponding structure disclosed in the specification: Digital Angel argues that it is “encapsulating member 50 and equivalents thereto” while Defendants argue it is “a non-plastic outer encapsulating member consisting of glass.” *Id.* at 3-4, 7-8, 15-16. Digital

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<sup>5</sup> While each claim in which these terms exist states the functions performed by the structure slightly differently, the functions are still relatively the same. Joint Claim Constr. Statement, App. A at 3-4, 7-8, 15-16.

Angel argues that its interpretation of the structure of the terms is supported by the claim language and the specification. Defendants aver that their interpretation is supported by amendments to the claims, statements made by the inventors of the '129 patent during prosecution, and statements made by Destron/IDI in the Infopet litigation, all of which evidence Digital Angel relinquished plastic encapsulants and all non-glass encapsulating materials.

The corresponding structure revealed in the specification is encapsulating member 50 and equivalents thereto. The specification reveals the following with regard to structure corresponding to "encapsulation means:"

- The transponder may be encapsulated in glass or a similarly durable material and in the preferred embodiment is 0.40" long and 0.080" in diameter. Col. 4:13-16.
- [The transponder] comprises an outer encapsulating member 50 which may be formed of glass, a coil 52, an integrated circuit chip 54, leads 56 connecting the chip 54 to the coil 52, and a support member 58. The coil 52 is wound upon a coil former 60. Glass encapsulation is preferred because glass is non-porous, corrosion-resistant, and amenable to sterilization, as compared to other possible encapsulation materials such as plastic. Col. 7:5-14.
- Note that while a transponder of cylindrical shape, 0.400 inch long and 0.080 inch [in diameter] has been described, other shapes and somewhat larger or smaller sizes would presumably also be useful. It is believed however that the transponder to be suitably syringe-implantable should be no more than about 0.5 inch[es] long and should have a cross-sectional area of not more than about 0.01 square inches. . . . The invention should therefore not be limited to the precise embodiment shown. Cols. 7:67-68, 8:1-9.

The claim language and the specification support a construction of the corresponding structure of "encapsulation means" and "means encapsulating" as "encapsulating member 50 and equivalents thereto," or more specifically, "a structure no more than about 0.5 inches long and with a cross-sectional area of no more than about 0.01 square inches made from a material having characteristics equivalent to glass for preventing leakage of internal fluids of said host animal



into said unit for a period of time in excess of several months.”

The Court is not persuaded by Defendants’ prosecution disclaimer and judicial estoppel arguments regarding Digital Angel’s alleged relinquishment of plastic and non-glass materials as encapsulants. “The doctrine of prosecution disclaimer precludes patentees from recapturing through claim interpretation specific meanings disclaimed during prosecution.” Sandisk Corp. v. Memorex Products, Inc., 415 F.3d 1278, 1286 (Fed. Cir. 2005). For a court to limit a claim term’s plain and ordinary meaning, there must be a “clear and unmistakable” disclaimer. Id.

The prosecution history reveals that Digital Angel<sup>6</sup> was required to distinguish its later-made transponders from its earlier-made transponders in order to avoid an “on sale” rejection of its patent application. See Defendants’ Ex. 4c (Swiatek letter dated January 24, 1992). Digital Angel successfully accomplished the distinction by filing an amendment of its patent application to state that the earlier-made transponders failed because fluids from the implant animals leaked into the transponders. Id. (Hancock letter dated July 27, 1992). Digital Angel thus endeavored to “improv[e] the encapsulation so as to seal each transponder as a unit against leakage of the host physiological fluids.” Id. “They considered various materials and processes before settling upon glass encapsulation employing contemporary procedures.” Id. (emphasis in the original). Thus, Digital Angel averred that its earlier-made transponders, encapsulated with a plastic material, did not embody the claimed invention of the ‘129 patent. Id.

While the Hancock letters in the prosecution history make several references to the use of glass as an encapsulant, and its success in preventing leakage into the transponder as compared

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<sup>6</sup> For ease of reference, Digital Angel, rather than its predecessor-in-interest, is referred to herein as the patent applicant in the historical context.

to the prior plastic encapsulation, the letters also make multiple references to the “equivalent” of glass as an encapsulant. Id.; Defendants’ Ex. 4d (Hancock letter dated August 27, 1992).

Additionally, Hancock pointed out that claims 40-63 had been added to recite glass specifically, but that the applicant believed it was “entitled to a reasonable scope of equivalents,” and therefore if claims 1 and 14-39 (which recited “materials having characteristics equivalent to glass”) were allowable, claims 40-63 should be withdrawn. Defendants’ Ex. 4d (Hancock letter dated August 27, 1992). The examiner ultimately cancelled claims 40-63. Id. (Swiatek letter dated December 16, 1992). Viewed in its entirety, the prosecution history does not reveal a “clear and unmistakable” disclaimer of encapsulants other than glass. To the contrary, while glass is clearly the preferred encapsulant, the patent claims expressly include “equivalents” to glass, and while the earlier-made plastic transponders failed, the patentee never disclaimed plastic.

The term “enclosure” is used similarly to “encapsulation means” and “means encapsulating” in the claims, but is not a means-plus-function element. Digital Angel argues that the term “enclosure” means “something that surrounds or closes in,” and Defendants define “enclosure” as “a non-plastic enclosure consisting of glass.” Joint Claim Constr. Statement, App. A at 5. Because the term “enclosure” is used similarly to “encapsulation means” and “means encapsulating,” “enclosure” is construed to mean “encapsulating member 50 and equivalents thereto,” or more specifically, “a structure no more than about 0.5 inch long and with a cross-sectional area of no more than about 0.01 square inches made from a material having characteristics equivalent to glass for preventing leakage of internal fluids of said host animal into said unit for a period of time in excess of several months.” Cf. Rexnord Corp. v. The

Laitram Corp., 274 F.3d 1336, 1342 (Fed. Cir. 2001) (stating claim terms “should be construed consistently with [their] appearance in other places in the same claim or other claims of the same patent.”).

Finally, Digital Angel argues that the term “material having characteristics equivalent to glass” viewed in the context of the claim as a whole and the specification, means “the material must be capable of preventing leakage of an amount of fluid that would be sufficient to cause failure of the claimed device for a period of at least two months.”<sup>7</sup> Pl.’s Markman Br. at 26. Digital Angel further argues that the term inherently includes five additional criteria directed toward the reliable functioning of the transponder: the material must (1) be inert in tissue, (2) be not toxic, (3) be sufficiently impermeable to water and water vapor to protect the electronic circuitry, (4) have sufficient mechanical properties to protect the device during syringe implantation, and (5) be able to encapsulate the components of the claimed device without damaging them. Id. at 26-27. Digital Angel contends glass is merely a preferred material, and nothing in the prosecution history shows a “clear and unmistakable surrender” of non-glass encapsulating materials. In contrast, Defendants define “material having characteristics equivalent to glass” as “glass.” Joint Claim Constr. Statement, App. A at 4, 12, 16. Defendants again rely on prosecution history and judicial estoppel arguments to support their contention that the encapsulating material of the ‘129 patent can be made only of glass. Defendants also assert an indefiniteness argument.

Judicial estoppel is a discretionary, equitable doctrine “that prevents a litigant from

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<sup>7</sup> In the Joint Claim Construction Statement, Digital Angel avers that “material having characteristics equivalent to glass” means “having characteristics of low water vapor permeability which prevent leakage into the transponder.” App. A at 4, 12, 16.

pervverting the judicial process by, after urging and prevailing on a particular position in one litigation, urging a contrary position in a subsequent proceeding—or at a later phase of the same proceeding—against one who relied on the earlier position.” Sandisk, 415 F.3d at 1290; see also Amtrust, Inc. v. Larson, 388 F.3d 594, 600 (8th Cir. 2004). The Supreme Court has identified three non-exclusive factors for courts to consider when determining whether to apply judicial estoppel:

(1) the party’s later position must be clearly inconsistent with the earlier position, (2) the party must have succeeded in persuading a court to adopt the earlier position in the earlier proceeding, and (3) the courts consider whether the party seeking to assert an inconsistent position would derive an unfair advantage or impose an unfair detriment on the opposing party if not estopped.

Sandisk, 415 F.3d at 1290-91, citing New Hampshire v. Maine, 532 U.S. 742, 751 (2001).

The exhibits submitted by Defendants concerning the prior Infopet litigation do not support that Digital Angel’s position in this litigation is “clearly inconsistent” with its position in the Infopet litigation. Defendants’ Exs. 7-8, 10-11. Digital Angel’s previous briefs describe in considerable detail the history of the development of the transponder, including its initial encapsulation in plastic/polypropylene, failure due to leakage, and later encapsulation in glass. Fairly construed, Digital Angel’s previous statements indicate an intent to disclaim the particular plastic/polypropylene previously used as an encapsulant due to its inability to prevent leakage, but not an intent to disclaim all plastic/polypropylene for all time. The claim language at issue, “materials having characteristics equivalent to glass,” is not overwritten by any statements made in the previous litigation. While “plastic” may ultimately not be a “material having characteristics equivalent to glass,” Digital Angel has not specifically disclaimed plastic, and as such, statements made in the prior litigation regarding plastic/polypropylene v. glass

transponders do not work a judicial estoppel.<sup>8</sup>

The specification establishes the characteristics of glass that material must have to be equivalent: “Glass encapsulation is preferred because glass is non-porous, corrosion-resistant, and amenable to sterilization, as compared to other possible encapsulation materials, such as plastic.” ‘129 patent, col. 7:11-14. While the preferred embodiment described in the specification appears to be made of glass, the specification reveals that glass is a preferred but not required encapsulating material: “The transponder may be encapsulated in glass or a similarly durable material . . . .” *Id.* at col. 4:13-15. Also, as previously stated, the specification expressly states that the invention is not limited to the preferred embodiment. *Id.* at col. 13:1-7. Finally, and most importantly, the claims consistently recite “material having characteristics equivalent to glass,” which is significantly different from reciting “glass.” The Court is wary of incorporating limitations from the preferred embodiment into the claims, and mindful of the directive that effect must be given to all words in a claim. *See Exxon Chemical Patents, Inc. v. Lubrizol Corp.*, 64 F.3d 1553, 1557 (Fed. Cir. 1995). In view of the claim language and the specification, and for the reasons stated above, the term “material having characteristics equivalent to glass” means “material that is non-porous, corrosion-resistant, and amenable to sterilization.”

**F. “Packaged Together in Sterile Packaging Means”**

The next term to construe is “packaged together in sterile packaging means,” found in claim 6. The parties agree that the term is not a means-plus-function element. The crux of the

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<sup>8</sup> Whether “plastic” is a “material having characteristics equivalent to glass” is an issue likely to be determined under the doctrine of equivalents on summary judgment.

parties' dispute on this issue is the amount of packaging: Defendants argue the term refers to a single package while Digital Angel argues the term can refer to more than one package as long as the individual packages are together in one group. Consequently, Digital Angel interprets the term as "the cannula and the transponder being enclosed in a covering, wrapping, or container in one place, collection, or group, and each being enclosed in a covering, wrapping, or container that is intended to be substantially free from microorganisms." Joint Claim Constr. Statement, App. A at 6. Defendants argue that the term means "packaged as a combination in a single sterile package." *Id.* Digital Angel supports its position with reference to the dictionary, claim language, and the specification, which states that the cannula and transponder *can be* packaged together. Defendants support their position by reference to the specification, which discloses a single embodiment in which the cannula and transponder are packaged together in a single package, and statements made by Destron/IDI on appeal to the Federal Circuit in the Infopet case.

In the "Background of the Invention" section of the specification, the packaging is described as follows:

In particular, it is an object of one aspect of the invention to provide a conveniently prepackaged, sterile cannula and identification transponder combination, such that the individual implanting the transponders into animal can be provided with all the equipment needed in a single sterile package which is used on a one-time basis; the cannula then being simply disposed of. In this way, sterility is ensured and operator convenience is optimized.

'129 patent, col. 3:48-56. In the "Summary of the Invention" section, the specification states "[the transponder] may be supplied together with a disposable cannula for convenient syringe implantation into an animal." *Id.* at col. 4:16-18. The "preferred packaging" of the invention is depicted in Figure 2, and is described as follows:

In order to reduce the expense of implanting transponders, operator convenience should be maximized, without compromising the goals of sterility and minimization of trauma to the animal. Figure 2 shows a combination of a sterile cannula 30 with a sterilizable transponder 32 according to the invention, and as discussed in detail below, supplied already located within the tubular portion of the cannula. As shown, the cannula 30 with the transponder 32 packaged therein can both be supplied together in a sterile package 34; this clearly will maximize the convenience of the operator, who needs merely to open the package 34, attach the ferrule of the cannula to a syringe, inject the transponder and throw the cannula away.

Id. at col. 6:36-49.

The preferred packaging of the invention depicted in Figure 2 accomplishes the primary packaging goals of sterility, convenience, and low-cost. Even though separate packaging would detract from the primary packaging goals, the specification reveals, by its use of words such as “can” and “may,” that the inventors contemplated packaging in which the cannula and transponder would not be packaged together in a single package. Id. at cols. 4:16, 6:44.

However, separate packaging is not contemplated by claim 6, which claims “said transponder and said cannula being packaged together in sterile packaging means.” Id. at col. 14:14-16. The claim language as well as the teaching of the specification show that claim 6 is directed toward a combination in which a cannula and transponder are packaged together in a single sterile package. See Phillips, 415 F.3d at 1323-24 (describing the sometimes “difficult task” of determining when the embodiments define the outer limits of the claim term or are merely exemplary in nature, and stating that “[t]he manner in which the patentee uses a term within the specification and claims usually will make the distinction apparent.”). The term “packaged together in sterile packaging means” is construed to mean “packaged as a combination in a single sterile package.”

#### IV. CONCLUSION

Based upon the foregoing, and all of the files, records, and proceedings herein, **IT IS HEREBY ORDERED** that in interpreting the ‘129 patent, the contested terms be construed in accordance with this Order:

1. In claim 2 of the ‘129 patent, the term “consisting essentially of” is construed to mean “the invention necessarily includes the listed claim elements but is open to unlisted claim elements that do not materially affect the basic and novel properties of the claimed invention;”

2. In claims 2, 6, 8, 20, and 27 of the ‘129 patent, the terms “integrated circuit” and “integrated circuit means” are construed to mean “any complex set of electronic components and their interconnections that are etched or imprinted on a chip and are capable of performing the functions stated in the claims, including storing an identification code, detecting an interrogation signal, outputting the identification code upon reception of an interrogation signal by said coil means, and generating a transmission frequency signal by dividing the frequency of the interrogation signal;”

3. In claims 2, 20, and 27 of the ‘129 patent, the function associated with “carrier means” is “maintaining said coil and said integrated circuit means in specified physical relationship to one another,” and the function associated with “means for maintaining” is “maintaining said coil and said integrated circuit means as a unit in predetermined relationship to one another with the external dimensions of said unit allowing passage of said unit through the syringe barrel . . . including means employing a material having characteristics equivalent to glass for sealingly enclosing said unit from infiltration by internal fluids of said host for the length of said monitoring period after implantation in said host.” The structure associated with “carrier means”



and “means for maintaining” is (1) carrier 58, (2) carrier 68, (3) extension member 74, and (4) circuit board 78, each as depicted and described in Figures 7 and 8, as well as (5) the encapsulant itself with respect to “means for maintaining,” and (6) the equivalents thereto;

4. In claims 2, 8, and 27 of the ‘129 patent, the function associated with “encapsulation means” and “means encapsulating” is “encapsulating said coil means, integrated circuit means, carrier means, and conductor means in sealed relation as a unit and employing a material having characteristics equivalent to glass for preventing leakage of internal fluids of said host animal into said unit for a period of time in excess of several months.” The structure associated with “encapsulation means” and “means encapsulating” is “encapsulating member 50 and equivalents thereto,” or more specifically, “a structure no more than about 0.5 inch long and with a cross-sectional area of no more than about 0.01 square inches made from a material having characteristics equivalent to glass for preventing leakage of internal fluids of said host animal into said unit for a period of time in excess of several months;”

5. In claim 6 of the ‘129 patent, the term “enclosure” is construed to mean “encapsulating member 50 and equivalents thereto,” or more specifically, “a structure no more than about 0.5 inch long and with a cross-sectional area of no more than about 0.01 square inches made from a material having characteristics equivalent to glass for preventing leakage of internal fluids of said host animal into said unit for a period of time in excess of several months;”

6. In claims 2, 8, 20, and 27 of the ‘129 patent, the term “material having characteristics equivalent to glass” is construed to mean “material that is non-porous, corrosion-resistant, and amenable to sterilization;”

7. In claim 6 of the ‘129 patent, the term “packaged together in sterile packaging means”

is construed to mean “packaged as a combination in a single sterile package.”

BY THE COURT:

s/Ann D. Montgomery  
ANN D. MONTGOMERY  
U.S. DISTRICT JUDGE

Dated: May 22, 2006.